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09/719,430	12/12/2000	Joshua R. Smith	103140-5PCT	7630

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EXAMINER

KIM, CHONG R

ART UNIT

PAPER NUMBER

2623

DATE MAILED: 09/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/719,430

Applicant(s)

SMITH, JOSHUA R.

Examiner

Charles Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-83 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-57, 59, 60, 62, 63, 65, 66 and 68-83 is/are rejected.
- 7) ☒ Claim(s) 58, 61, 64 and 67 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 12, 26, 40, 54 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Referring to claims 12, 26, 40, 54, it appears that the phrase “a concatenation of a plurality of numerical hash values derived from said one or more images” in lines 2-3, is not supported in the applicant’s specification. In view of the applicant’s specification (page 12, lines 1-13), it appears that a hash value is obtained by concatenating numerical values derived from the images. For instance, the applicant’s specification states “images 47 may be converted into respective sets of numerical values, the sets of numerical values may be concatenated with each other, and the value of the resulting concatenation may serve as the hash value” (page 12, lines 1-4). For examination purposes, the limitation “a concatenation of a plurality of numerical hash values derived from said one or more images” will be interpreted as “a concatenation of a plurality of numerical values derived from said one or more images”, as supported in the applicant’s specification.

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4, 7-8, 13, 18, 21, 22, 27, 32, 41, 46, 55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "said mailpiece" in line 3. There is insufficient antecedent basis for this limitation in the claim. Similar rejections apply to claims 18, 32, and 46.

Referring to claim 7, the phrase "respective different oblique angles, and an identical azimuthal angle" in line 2 renders the claim indefinite because it is unclear how the different positions can have different oblique angles while having an identical azimuthal angle. Similar rejections apply to claim 21.

Referring to claim 8, the phrase "respective different azimuthal angles, and an identical oblique angle" in line 2 renders the claim indefinite because it is unclear how the different positions can have different azimuthal angles while having identical oblique angles. Similar rejections apply to claim 22.

Referring to claims 27, 41, and 55, the phrase "differences between the one or more images" renders the claim indefinite because it is unclear how to determine a difference between one image.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 7-19, 21-33, 35-47, 49-55, 57, 60, 63, 66, 68-75, 77, 79, 81, 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kariakin, PCT Publication No. WO 97/24699 ("Kariakin"), and Sansone, EP 0878778 A2 ("Sansone").

Referring to claim 1, Kariakin discloses an indicium for placement on a workpiece for use in determining whether the workpiece is valid, comprising:

a set of one or more markings corresponding to at least one of a certifying signature (page 2, lines 17-24 and page 21, lines 14-37) and a string, the signature being based at least in part upon the string wherein, if the workpiece is valid, the string is based upon, at least in part intrinsic physical characteristics (micro-topography) of at least one portion of the workpiece (page 2, line 35-page 3, line 5), the physical characteristics including one or more images of surface topographical appearance of the at least one portion of the workpiece resulting when the at least one portion of the workpiece is illuminated with electromagnetic radiation from different illumination positions relative to the at least one portion (page 3, lines 14-28).

Kariakin explains that the certifying signature is obtained by encrypting the string with a secret cryptographic key (d) (page 16, lines 1-20), but fails to explicitly teach that the signature is from a certifying authority (CA). However, the Examiner notes that signatures from a certifying

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authority were exceedingly well known in the art. For example, Sansone teaches a signature from a certifying authority (col. 5, lines 15-38).

Kariakin and Sansone are both concerned with validating a workpiece using cryptographic keys. Sansone's method improves the validation process by providing a signature that is from a known certifying authority. Therefore, it would have been obvious to modify the signature of Kariakin so that it is from a certifying authority, as taught by Sansone, in order to enhance the validation process.

Referring to claim 2, Kariakin further discloses that the one or more markings comprises a barcode (page 5, lines 28-30).

Referring to claim 3, Kariakin explains that the workpiece can comprise a document such as a bank note or other security (page 5, lines 16-17), but fails to explicitly state that the workpiece can comprise a postal mailpiece.

Sansone discloses a workpiece that comprises a postal mailpiece (figure 1).

Kariakin and Sansone are both concerned with validating a document. Therefore, it would have been obvious to modify the workpiece of Kariakin so that it is a postal mailpiece, as taught by Sansone, in order to increase the flexibility of the system.

Referring to claim 4 as best understood, Kariakin fails to disclose that the string is representative of a postage value associated with a mailpiece, if the workpiece is valid. However, Kariakin explains that the string is a unique characteristic of the document (page 2, line 35-page 3, line 5).

Sansone teaches a workpiece that comprises a postal mailpiece, as noted above. Sansone further explains that a postage value can be considered a characteristic of the mailpiece

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document (col. 3, line 50-col. 4, line 5). Therefore, it would have been obvious to modify the string of Kariakin so that it is also representative of a postage value associated with a mailpiece, as taught by Sansone, in order to provide further distinguishable characteristics of the workpiece for generating the indicium (Kariakin, page 2, line 37-page 3, line 1), thereby enhancing the validation process.

Referring to claim 5, Sansone further discloses that an indicium is imprinted on the mailpiece by an apparatus (postal security device) [col. 4, lines 4-12]. Sansone also explains that the indicium comprises a string that identifies the apparatus (col. 4, lines 4-12. Note that the indicia 23 includes the serial number of the postal security device that imprinted the indicia).

Referring to claim 7 as best understood, Kariakin further discloses that the different positions are at respective different oblique angles (page 20, lines 13-21).

Referring to claim 8 as best understood, Kariakin further discloses that the different positions are at respective different azimuthal angles (page 20, lines 13-21).

Referring to claim 9, Kariakin further discloses that a portion of the radiation is reflected from the at least one portion at an angle that is normal to a surface of the at least one portion, and the one or more images are generated from the portion of the radiation (page 23, lines 9-24).

Referring to claim 10, Kariakin further discloses that the radiation comprises coherent light (page 20, lines 13-21).

Referring to claim 11, Kariakin further discloses that the at least one portion comprises a plurality of portions of the workpiece (page 15, lines 20-24).

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Referring to claim 12 as best understood, Kariakin further discloses that the string is based upon a concatenation (combination) of a plurality of numerical values derived from the images (page 3, lines 23-28).

Referring to claim 13, Kariakin further discloses that the string is based upon, at least in part, differences between the one or more images (page 3, lines 30-37).

Referring to claims 14 and 15, see the rejection of at least claim 1 above.

Referring to claims 16, 30, 44, see the rejection of at least claim 2 above.

Referring to claims 17, 31, 45, see the rejection of at least claim 3 above.

Referring to claims 18, 32, 46, see the rejection of at least claim 4 above.

Referring to claims 19, 33, 47, see the rejection of at least claim 5 above.

Referring to claims 21, 35, 49, see the rejection of at least claim 7 above.

Referring to claims 22, 36, 50, see the rejection of at least claim 8 above.

Referring to claims 23, 37, 51, see the rejection of at least claim 9 above.

Referring to claims 24, 38, 52, see the rejection of at least claim 10 above.

Referring to claims 25, 39, 53, see the rejection of at least claim 11 above.

Referring to claims 26, 40, 54, see the rejection of at least claim 12 above.

Referring to claims 27, 41, 55, see the rejection of at least claim 13 above.

Referring to claims 28, 42, see the rejection of at least claim 14 above.

Referring to claims 29, 43, see the rejection of at least claim 15 above.

Referring to claim 57, Kariakin further discloses that the one or more images comprise a plurality of respective images of surface topographical appearances of the at least one portion



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resulting when the at least one portion is illuminated with the radiation from respective illumination positions relative to the at least one portion (page 20, lines 13-21).

Referring to claims 60, 63, 66, see the rejection of at least claim 57 above.

Referring to claim 68, Kariakin further discloses that the one or more images are generated using at least a single photosensing element (page 20, line 23).

Referring to claims 69-71, see the rejection of at least claim 68 above.

Referring to claim 72, Kariakin further discloses that the indicium uniquely identifies the workpiece (page 2, line 35-page 3, line 12 and page 27, lines 14-31).

Referring to claims 73-75, see the rejection of at least claim 72 above.

Referring to claim 77, Kariakin further discloses that the string is based, at least in part, upon a calculation of principal components of the one or more images (page 20, line 23-page 21, line 6. Note that the vectors "L\*" are interpreted as the principal components, since they are the resulting components that are obtained after the redundancy reduction process).

Referring to claims 79, 81, 83, see the rejection of at least claim 77 above.

4. Claims 6, 20, 34, 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kariakin, PCT Publication No. WO 97/24699 ("Kariakin"), and Sansone, EP 0878778 A2 ("Sansone"), further in view of the article entitled "A Robust Content Based Digital Signature for Image Authentication" by Schneider et al. ("Schneider").

Referring to claim 6, the combination of Kariakin and Sansone teach a string based upon respective numerical values representative of the physical characteristic of the workpiece, the postage value, and an identification value identifying the apparatus, as noted above.

However, both Kariakin and Sansone fail to teach one or more hash values representative of the physical characteristics of the workpiece.

The Examiner notes that hash values were exceedingly well known in the art. For example, Schneider discloses one or more hash values representative of a characteristic (image) [page 228].

Kariakin, Sansone, and Schneider are all concerned with validating a workpiece. Schneider explains that the use of hash values increases the flexibility of the verification process (Schneider, page 230, right column). Therefore, it would have been obvious to modify the string of Kariakin and Sansone, so that it includes the one or more hash values of Schneider, in order to increase the flexibility of the verification process.

Referring to claims 20, 34, 48, see the rejection of at least claim 6 above.

5. Claims 56, 59, 62, 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kariakin, PCT Publication No. WO 97/24699 ("Kariakin"), and Sansone, EP 0878778 A2 ("Sansone"), further in view of Fukutome et al., U.S. Patent No. 5,850,306 ("Fukutome").

Referring to claim 56, Kariakin teaches a scanner for illuminating the at least one portion from different illumination positions, as noted above, but fails to teach that the at least one portion is illuminated with a radiation simultaneously from the different illumination positions.

Fukutome teaches a scanner that is capable of illuminating an object with radiation simultaneously from different illumination positions (col. 1, lines 35-58).

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The Examiner notes that it would have been obvious to modify the scanner of Kariakin and Sansone, so that it is capable of illuminating an object with radiation simultaneously from different illumination positions, as taught by Fukutome, in order to reduce the size and cost of the optical scanner (Fukutome, col. 1, lines 59-67), thereby enhancing the ergonomics of the validation system.

Referring to claims 59, 62, 65, see the rejection of at least claim 56 above.

6. Claims 76, 78, 80, 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kariakin, PCT Publication No. WO 97/24699 ("Kariakin"), and Sansone, EP 0878778 A2 ("Sansone"), further in view of Natarajan U.S. Patent No. 6,611,599 ("Natarajan").

Referring to claim 76, Kariakin and Sansone both fail to teach that the string is based at least in part, upon an averaging of portions of the one or more images. However, this feature was exceedingly well known in the art. For example, Natarajan teaches an indicium (watermark) comprising a string that is based at least in part upon an averaging of portions of one or more images (col. 7, lines 35-65).

Kariakin, Sansone, and Natarajan are all concerned with validating a workpiece. Natarajan's method allows changes in brightness or contrast without fooling the verification process (Natarajan, col. 3, lines 9-14). Therefore, it would have been obvious to modify the string of Kariakin and Sansone so that it is based at least in part upon an averaging of portions of the one or more images, as taught by Natarajan, in order to increase the accuracy of the verification/validation process.

Referring to claims 78, 80, 82, see the rejection of at least claim 76 above.

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*Allowable Subject Matter*

7. Claims 58, 61, 64, 67 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Tucker et al. U.S. Patent No. 4,807,287 discloses a method for validating an object utilizing an indicia that is obtained from the unique characteristics of the object.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Monday thru Thursday 8:30am to 6:00pm and alternating Fridays 9:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

ck

August 28, 2003

  
Jon Chang  
Primary Examiner